Refraction

(spherocylindrical)
refraction
- subjective (phoropter)
- objective
(refractometer)

Topography

K values
curvature map

topography map
power map (cornea)

pupil data
line of view

Wavefront

Wave front
wave front (eye)
higher-order errors

(spherocylindrical) refraction
objective

power map (eye)

pupil data

pachymetry

pupillometry

Height data of the deviations vis-à-vis the reference surface

Refraction
  applications of standard algorithms (Munnerlyn formulae)

Refraction + topography
  deduction of the height data from topography data
  curvature of the reference surface according to refractive data
  applications of standard algorithms (Munnerlyn formulae) nomograms?
  consideration of K values

Refraction + wave front
  curvature of the reference surfaces according to refractive data
  applications of standard algorithms (Munnerlyn formulae) nomograms?
  overlaying with HO data (calculated from subjective refractions?)

Refraction + topography + wave front
  Problem: difference topo <-> wave
  Applications of standard algorithms (Munnerlyn formulae) nomograms?
  Overlaying with HO data (calculated from subjective refractions?)
  consideration of K values

Reference surfaces: as desired, e.g. ellipsoid, sphere, etc.
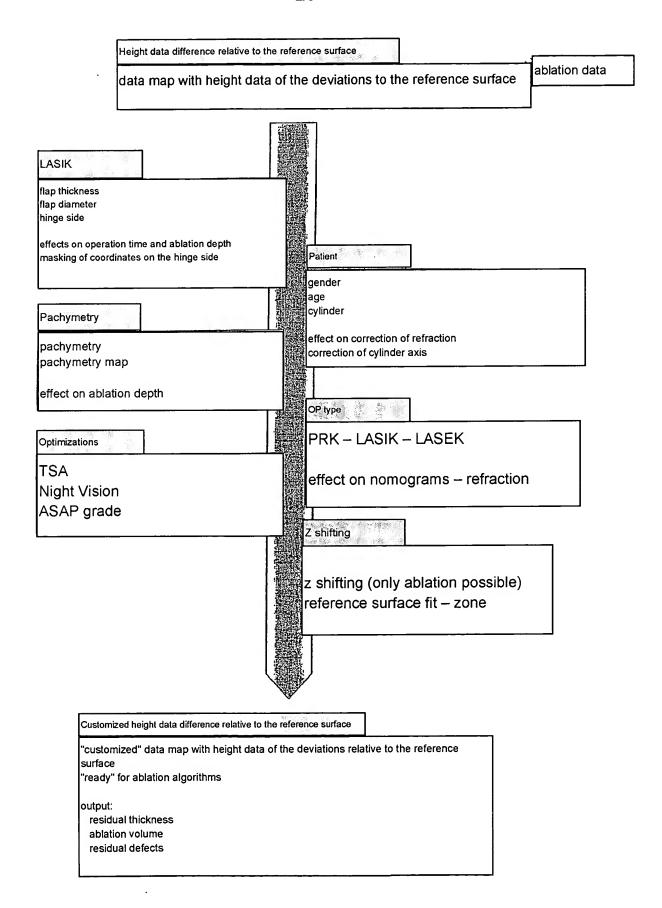
Height data difference relative to the reference surface

data map with height data of the deviations relative to the reference surface

Height data difference relative to the reference surface

data map with height data of the deviations to the reference surface

ablation data

LASIK

flap thickness
flap diameter
hinge side

effects on operation time and ablation depth
masking of coordinates on the hinge side

Patient

gender
age
cylinder

effect on correction of refraction
correction of cylinder axis

Pachymetry

pachymetry
pachymetry map

effect on ablation depth

OP type

PRK – LASIK – LASEK

effect on nomograms – refraction

Optimizations

TSA
Night Vision
ASAP grade

Z shifting

z shifting (only ablation possible)
reference surface fit – zone

Customized height data difference relative to the reference surface

"customized" data map with height data of the deviations relative to the reference
surface
"ready" for ablation algorithms

output:
   residual thickness
   ablation volume
   residual defects

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Customized height data difference relative to the reference surface

"customized" data map with height data of the deviations relative to
the reference surface
"ready" for ablation algorithms

Laser parameters

energy density distribution spot
firing frequency
spot geometry
resolution accuracy scanner

smoke problems, thermal problems

Reflection, Projection

energy density distribution change
reflection losses

correction of reference data

Ablation coordinates for laser

coordinate data for specific laser (MEL 70, MEL 80)

output:
OP time